

IN THE CLAIMS – Following is the list of claims and their status:

1. (Currently Amended) A method for fusing a first conduit portion to a second conduit portion, comprising the steps of:

(a) removably positioning a first terminal edge of the first conduit portion in an opposing relationship with a first terminal edge of the second conduit portion;

(b) facing the first terminal edge of the first conduit portion and the first terminal edge of the second conduit portion;

(c) aligning the first terminal edge of the first conduit portion with the first terminal edge of the second conduit portion;

(d) melting at least a portion of the first terminal edge of the first conduit portion and the first terminal edge of the second conduit portion;

(e) engaging the melted terminal edge of the first conduit portion with the melted terminal edge of the second conduit portion; and

(f) maintaining pressure between the engaged terminal edge of the first conduit portion and the terminal edge of the second conduit portion, thereby creating a fused joint area;

wherein at least one of the first conduit portion and the second conduit portion comprises a polyvinyl chloride material, and

wherein the gauge pressure for the engaging step is calculated utilizing the following formula:

$$MGp = \frac{\pi(OD^2-ID^2)}{4} \times \frac{Ip}{Ca}$$

wherein MGp is machine gauge pressure, π is 3.1416 circle formula, OD^2 is outside diameter in inches squared, ID^2 is inside diameter in inches squared, I_p is interfacial pressure and Ca is the cylinder area of machine in square inches.

2. (Original) The method of claim 1, further comprising the step of removing at least a portion of a resultant external bead extending around the fused joint area.

3. (Original) The method of claim 1, further comprising the step of removing at least a portion of a resultant internal bead extending around the fused joint area.

4. (Original) The method of claim 1, further comprising the steps of:
removably positioning a second terminal edge of the first conduit portion in an opposing relationship with a first terminal edge of a subsequent conduit portion;

facing the second terminal edge of the first conduit portion and the first terminal edge of the subsequent conduit portion;

aligning the second terminal edge of the first conduit portion with the first terminal edge of the subsequent conduit portion;

melting at least a portion of the second terminal edge of the first conduit portion and the first terminal edge of the subsequent conduit portion;

engaging the melted terminal edge of the first conduit portion with the melted terminal edge of the subsequent conduit portion; and

maintaining pressure between the engaged terminal edge of the first conduit portion and the terminal edge of the subsequent conduit portion, thereby creating a subsequent fused joint area.

5. (Original) The method of claim 1, further comprising the steps of:

removably positioning a second terminal edge of the second conduit portion in an opposing relationship with a first terminal edge of a subsequent conduit portion;

facing the second terminal edge of the second conduit portion and the first terminal edge of the subsequent conduit portion;

aligning the second terminal edge of the second conduit portion with the first terminal edge of the subsequent conduit portion;

melting at least a portion of the second terminal edge of the second conduit portion and the first terminal edge of the subsequent conduit portion;

engaging the melted terminal edge of the second conduit portion with the melted terminal edge of the subsequent conduit portion; and

maintaining pressure between the engaged terminal edge of the second conduit portion and the terminal edge of the subsequent conduit portion, thereby creating a subsequent fused joint area.

6. (Currently Amended) The method of claim 1, wherein the facing step provides a face on each conduit portion, wherein the faces are at least one of substantially parallel to and substantially square face, perpendicular to a ~~first conduit portion and a second~~ conduit portion centerline.

7. (Original) The method of claim 1, wherein the aligning step includes aligning an outside diameter of the first conduit portion with an outside diameter of the second conduit portion.

8. (Original) The method of claim 1, wherein the melting step includes the simultaneous heating of both the terminal edge of the first conduit portion and the terminal edge of the second conduit portion.

9. (Cancelled)

10. (Currently Amended) The method of claim 1 [[9]], wherein conduit surface area (pSa) in square inches is calculated utilizing the following formula:

$$pSa = \frac{\pi(OD^2 - ID^2)}{4}$$

wherein π is 3.1416 circle formula, OD^2 is outside diameter in inches squared and ID^2 is inside diameter in inches squared.

11. (Original) The method of claim 10, wherein when a conduit area is 1.00 square inch, the gauge pressure is calculated utilizing the following formula:

$$Gp = pSa \times Ip$$

12. (Original) The method of claim 11, wherein when pipe surface area (pSa), interfacial pressure (Ip) and cylinder area of machine (Ca) are known, the gauge pressure is calculated utilizing the following formula:

$$MGp = \frac{pSa \times Ip}{Ca}$$

13.-32. (Cancelled)

33. (NEW) The method of claim 1, further comprising the step of automatically controlling at least one of steps (a)-(f).

34. (NEW) The method of claim 1, further comprising the step of receiving and processing data signals directed to at least one of steps (a)-(f).

35. (NEW) The method of claim 1, further comprising the step of maintaining a specified temperature during the melting step.

36. (NEW) The method of claim 1, further comprising the step of providing a plurality of heat zones during at least one of the melting and engaging steps, wherein each of the plurality of heat zones may exhibit a different temperature, thereby providing zone heating.

37. (NEW) The method of claim 36, further comprising the step of controlling the different temperatures of the plurality of heat zones.

38. (NEW) The method of claim 1, further comprising the step of measuring at least one physical characteristic during at least one of steps (a)-(f).